Protecting the Nation's Shorelines

With a large proportion of the U.S. population living near our sea and lake shores, and an estimated 75% of U.S. vacations being spent at the beach, there has been Federal interest in protecting these areas from hurricane and coastal storm damage and the effects of erosion. The U.S. Army Corps of Engineers, the Federal Government's primary water resource agency, has used a variety of measures to protect homes, businesses and public infrastructure along the shoreline, and these measures have prevented billions of dollars in damages and saved numerous lives.

The Corps of Engineers always looks for the most economical, environmentally sound and socially acceptable solutions to shore protection. In some cases, this will involve hard structures - jetties, seawalls, etc. The seawall in Galveston, Texas, is an excellent example - it has kept the city safe from a repeat of the destruction it experienced in September 1900. In San Francisco, a seawall put in place over 60 years ago has protected Golden Gate Park from severe winter storms. In neither case has the seawall caused any subsequent erosion.

In many other cases, a preferable approach is beach nourishment, the placement of sand along the beach. Beach nourishment can be an economical solution to a storm damage problem. During storms the sand acts as a buffer and protects the structures behind the beach. Storm waves move the sand offshore, causing the waves to also break further offshore and thus reducing the erosion threat at the shoreline.

Although the exposed beach area gradually diminishes with time and storm activity, most projects retain a large volume of the sand within the immediate offshore zone. At the Corps-designed Folley Beach, SC project, recent surveys by Professor Paul Gayes of Carolina Coastal College have shown that 75% of the placed sand volume remains 8 years after construction. Some beaches can be maintained by periodic additions of modest amounts of sand, such as the Miami Beach Corps' designed project, which has required less than 1% per year of the amount placed in the original nourishment of 1976-1981.

Corps shore protection projects are usually cost-shared with the State or local jurisdiction where the project is located. In cases where the project involves beach nourishment, the cost sharing agreement usually calls for periodic re-nourishment, often over a period of 50 years. The Federal Government honors all such commitments. A study commissioned by the U.S. Office of Management and Budget concluded that Corps beach nourishment projects have performed generally as designed. Actual re-nourishment volumes, averaged over all projects, have been within 5% of predicted volumes. And actual costs have roughly equaled predicted costs

Requests for shore protection projects nearly always come from communities where intense development has already taken place. Federal policy requires that speculative future development not be used to justify the cost of projects. In evaluating project performance, the Corps has found that shore protection projects have no measurable effect in encouraging more development.

The Corps of Engineers carries out shore protection projects at the request of local sponsors, as authorized and funded by Congress. Projects are constructed only where public access to the beach is assured and adequate parking is provided, and only after thorough studies have determined a positive benefit to cost ratio exists. The study process includes numerous opportunities for public comment and involvement. Although Corps projects provide benefits such as shoreline protection, habitat protection and restoration, and the generation of tax dollars associated with that recreation, the primary purpose is always the protection of life and property.

It must be noted that the Federal government is not the only entity that builds shore protection projects. In a few instances, State and local governments have funded projects with revenues generated by economic activity along the beaches.

Additional Information:

- Sea Life Rebounds After Beach Nourishment 2 August, 2001Final Report for The Army Corps of Engineer New York District's Biological Monitoring Program for the Atlantic Coast of New Jersey, Asbury Park to Manasquan Inlet Section Beach Erosion Project
- Hurricane Fran Report Available Online!(10 MB, pdf format) Fran hit the North Carolina coast in 1996. This report compares the impacts to four areas, two that had Corps beach protection projects and two that did not. The conclusion? Beach nourishment projects like this reduce storm damage and Federal recovery costs.
- Other points of view: "Beach projects save money" by Rep. Frank Pallone Jr., D-N.J From USA Today
- "Fighting beach erosion" from MSNBC